AMENDMENTS TO THE SPECIFICATION

Please add paragraph [00041a] following paragraph [00041] as follows:

[00041a] 11. Waveguide Light Coupling Center Fixture End

Please amend paragraph [00042] as follows:

[00042] 12. Waveguide Light Coupling Center Fixture

Please replace paragraphs [00081] and [00082] with the following:

[00081] Figure 2 depicts a close-up cross section of the invention. The vacuum tube conduit (1) is connected to the stationary portion of the hub that consists of the hub cover (2), the opto-electronic device (17), its associated electronics, and its supporting structure, and the encoder electronics (27). The polishing pad (4) on the polishing table (40) contains the waveguide optical fiber (10) contained within the polishing pad waveguide passage. The waveguide has a light coupling center fixture (12) end located at the center of rotation, under the opto-electronic device (17), which is stationary, and an outer lens end (3) located near the center of the wafer track. The waveguide light coupling center fixture ~~(12)~~ end (11) and outer lens end (3) are located within recesses in the pad surface that are sized to place the exposed surfaces even with the polishing surface of the pad. The rotating portions of the hub are the locator ridge sleeve (33) and the vacuum attachment housing (43).

[00082] Figure 3 shows a cross-sectional drawing of the optical coupler hub assembly showing the polishing pad (4) mounted on the polishing table (40), the stationary hub cover (2), connected by the vacuum tube housing (1) to the stationary portion of the CMP tool shown in figure 1, and the hub rotating vacuum attachment housing (43). When the vacuum attachment housing (43) is located onto the polishing pad (4) precisely over the center of rotation, the optical axis (26) of the waveguide light coupling center fixture (12) is on this center; then bearing pair (18a & 18b) allows the hub rotating portion, that is the vacuum attachment housing (43) and the attached encoder disk (25), to rotate about the optical axis (26) while the hub stationary portions do not rotate. The stationary hub cover (2) is attached to the stationary encoder electronics (27) which may be used to "home the pad" as previously described. The stationary opto-electronic device (17), micro-processing device (16), and printed circuit board (15) are attached to a

stationary structure consisting of the flange (19), which has a shaft extending up and through an opening in the vacuum attachment housing and is secured to the stationary hub cover (2) by nut (44) and washer (45). The stationary hub cover has a removable access plug (6) for assembly and disassembly of the nut and washer. The hub cover (2) is attached to the vacuum tube conduit (1) to form the stationary external portion of the hub.

Please replace paragraph [00089] with the following:

[00089] Figure 5 also shows the vacuum supply hose (47) inside of the vacuum tube conduit (1). Vacuum is maintained in the vacuum chamber (48) by the vacuum hose (47). The vacuum propagates through the flange and into the vacuum chamber (48). Atmospheric pressure on the hub cover (2) exceeds the vacuum pressure in the vacuum chamber, providing a force to hold the hub on the polishing pad surface (4). There would be a potential for leakage between the pad surface external to the hub and the vacuum chamber if it weren't for the equalizing groove (60) and the pressure equalizing passages (49). The equalizing groove surrounds the vacuum chamber and is essentially at the same atmospheric pressure as the pad surface. There is no pressure differential between the pad surface and the equalizing groove to drive a leakage flow. Instead if leakage occurs it will be from the relatively clean air in the vacuum tube conduit (1) surrounding the vacuum hose (47). The flow would be from the conduit (1) through the pressure equalizing passages (49) to the equalizing groove (60), located between the vacuum chamber (48) and the vacuum attachment housing (43) edge. The flow then would be through the leakage path to the vacuum chamber and then through the chamber to the vacuum hose (47). Thus the equalizing groove precludes polishing fluid from the pad surface from flowing through the vacuum chamber where it may damage the opto-electronic device and associated electronics. This groove provides a means to prevent slurry contaminates on the pad surface from leaking to the vacuum chamber as the pressures are equal, in other words there is no pressure differential, between the pad surface surrounding the hub and the equalizing groove ~~thatsurrounds~~ that surrounds the vacuum chamber.